Claims 1, 6, 8, 10-11, 16, 21, 23-26, 28, 33, 35-38, and 40 have been amended, while claims 5, 15, 19, and 31 have been canceled without prejudice. Claim 41 is herein added. Applicant respectfully traverses the Office's rejections and, in view of the foregoing amendments and the following remarks, respectfully requests that the Office issue a Notice of Allowance.

ALLOWABLE SUBJECT MATTER

In the current Action, the Office deems claims 23-26 and 35-38 allowable. Specifically, the Office states that these claims "are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim." Office Action of 09/10/2007, p. 18.

Applicant thanks the Office for this indication.

EXPECTATION THAT ANY SUBSEQUENT ACTION MAINTAIN NON-FINALITY

Applicant notes that new independent claim 41 has been amended to recite subject matter previously recited in now-canceled dependent claim 12. Applicant also notes that the Office agreed during the afore-mentioned interview that the reference (Pirolli) cited as teaching the recited "information fidelity" of claim 12 fails to teach such an element. As such, the Office agreed that the outstanding § 103(a) rejection of claim 12 fails to state a *prima facie* case of obviousness. Applicant again notes that new claim 41 corresponds to original dependent claim 12. For at least this reason, Applicant respectfully submits that any subsequent

Office Action (other than a Notice of Allowance) should remain Non-Final. <u>See</u> 37 CFR § 1.113, MPEP § 706.07(a).

DRAWING OBJECTIONS

In the current Action, the Office objects to Applicant's drawings. Applicant herein amends the specification and includes two replacement drawing sheets, thus obviating the grounds for the objections. Applicant therefore respectfully requests that the Office withdraw the objections.

CLAIM OBJECTIONS

In the current Action, the Office objects to claims 8, 11, 23-26, and 35-38. Applicant has amended each of these claims, thus obviating the grounds for the objections. Applicant therefore respectfully requests that the Office withdraw the objections.

§ 103 REJECTIONS

Claims 1-5, 7-10, 15-21, 28-33, and 40 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,232,974 to Horvitz et al. (hereinafter, "Horvitz") in view of *Computation Modeling of Visual Attention*, Itti et al. (hereinafter, "Itti").

Claims 6, 14, 27, and 39 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horvitz in view of Itti in further view of U.S. Patent No. 6,353,824 to Boguraev et al. (hereinafter, "Boguraev").

Claims 11, 22, and 34 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horvitz in view of Itti in view of Boguraev in further view

of in view of *Perception-Based Image Transcoding for Universal Multimedia Access*, Lee et al. (hereinafter, "Lee").

Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horvitz in view of Itti in view of U.S. Patent No. 6,670,963 to Osberger (hereinafter, "Osberger") in further view of *Exploring Browser Design Trade-Offs Using a Dynamic Model of Optimal Information Foraging*, Pirolli (hereinafter, "Pirolli").

Applicant respectfully traverses the rejections. Nevertheless, Applicant has amended the independent claims in the manner discussed during the interview and during the follow-up phone calls with Examiner Daley for the sole purpose of expediting allowance and without conceding the propriety of the Office's rejections.

THE CLAIMS

Claim 1 recites a method comprising (added language underlined):

- modeling an image with respect to multiple visual attentions to generate a respective set of attention objects (AOs) for each attention of the visual attentions;

- analyzing the attention objects and corresponding attributes to optimize a rate of information gain as a function of information unit cost in terms of time associated with multiple image browsing modes, wherein the corresponding attributes for each attention object of the AOs comprise a minimal perceptible time for display of subject matter associated with the attention object;

- responsive to analyzing the attention objects, generating a browsing path to select ones of the attention objects; and

- causing display of subject matter associated with each of the selected ones of the attention objects for at least a respective minimal perceptible time by panning the image according to the generated browsing path.

In making out a rejection of this claim, the Office alleges that the combination of Horvitz and Itti renders this claim obvious. Applicant respectfully disagrees. Nevertheless, for the sole purpose of expediting allowance and without conceding the propriety of the Office's rejections, Applicant has amended this claim as discussed during the interview. Applicant respectfully submits that the cited references at least fail to disclose "*causing display of subject matter associated with each of the selected ones of the attention objects **for at least a respective minimal perceptible time by panning the image according to the generated browsing path**.*" (emphasis added). During the afore-mentioned interview, the Office agreed. Applicant thanks the Office for this indication.

For at least this reason, this claim stands allowable.

Claims 2-4 and 6-14 depend from claim 1 and, as such, the remarks made above in regards to claim 1 apply equally to these claims. These claims are also allowable for their own recited features, which the references of record have not been shown to disclose, teach, or suggest. In addition, while some of these claims are rejected in view of other references, these other references similarly fail to disclose or suggest the language added to the base claim.

Claim 16 recites a computer-readable medium comprising computer-program instructions executable by a processor for (added language underlined):

- modeling an image with respect to multiple visual attentions to generate a respective set of attention objects (AOs) for each attention of the visual attentions, the AOs representing respective regions of the image;

- analyzing the attention objects and corresponding attributes to in view of a model for human browsing behavior, the model comprising fixation and shifting states, in the fixation state an interesting region of the regions is exploited for information, in the shifting state one region of the regions is replaced with another region of the regions as a function of image view manipulation operations such as scrolling or tabbing operations, and wherein the corresponding attributes for each attention object of the AOs comprise a minimal perceptible time for display of subject matter associated with the attention object;

- responsive to the analyzing, optimizing a rate of information gain in terms of space as a function of information unit cost in terms of time associated with the model for human browsing behavior to generate a browsing path to select ones of the attention objects;

- causing display of subject matter associated with each of the selected ones of the attention objects for at least a respective minimal perceptible time by panning the image according to the generated browsing path.

In making out a rejection of this claim, the Office alleges that the combination of Horvitz and Itti renders this claim obvious. Applicant respectfully disagrees. Nevertheless, for the sole purpose of expediting allowance and without conceding the propriety of the Office's rejections, Applicant has amended this claim as discussed during the interview. Applicant respectfully submits that the cited references at least fail to disclose "causing display of subject matter associated with each of the selected ones of the attention objects for at least a respective minimal perceptible time by panning the image according to the generated browsing path." (emphasis added). During the afore-mentioned interview, the Office agreed. Applicant thanks the Office for this indication.

For at least this reason, this claim stands allowable.

Claims **17-18 and 20-27** depend from claim 16 and, as such, the remarks made above in regards to claim 16 apply equally to these claims. These claims are also allowable for their own recited features, which the references of record have not been shown to disclose, teach, or suggest. In addition, while some of these claims are rejected in view of other references, these other references similarly fail to disclose or suggest the language added to the base claim.

Claim 28 recites a computing device comprising a processor coupled to a memory, the memory comprising computer-program instructions executable by the processor for (added language underlined):

- modeling an image with respect to multiple visual attentions to generate a respective set of attention objects (AOs) for each attention of the visual attentions, the AOs representing respective regions of the image;

- analyzing the attention objects and corresponding attributes to in view of a model for human browsing behavior, the model comprising fixation and shifting states, in the fixation state an interesting region of the regions is exploited for information, in the shifting state one region of the regions is replaced with another region of the regions as a function of image view manipulation operations such as scrolling or tabbing operations, and wherein the corresponding attributes for each attention object of the AOs comprise a minimal perceptible time for display of subject matter associated with the attention object;

- responsive to the analyzing, optimizing a rate of information gain in terms of space as a function of information unit cost in terms of time associated with the model for human browsing behavior to generate a browsing path to select ones of the attention objects; and

- causing display of subject matter associated with each of the selected ones of the attention objects for at least a respective minimal perceptible time by panning the image according to the generated browsing path.

In making out a rejection of this claim, the Office alleges that the combination of Horvitz and Itti renders this claim obvious. Applicant respectfully disagrees. Nevertheless, for the sole purpose of expediting allowance and without conceding the propriety of the Office's rejections, Applicant has amended this claim as discussed during the interview. Applicant respectfully submits that the cited references at least fail to disclose "causing display of subject matter associated with each of the selected ones of the attention objects for at least a respective minimal perceptible time by panning the image according to the generated browsing path." (emphasis added). During the afore-mentioned interview, the Office agreed. Applicant thanks the Office for this indication.

For at least this reason, this claim stands allowable.

Claims 29-30 and 32-39 depend from claim 28 and, as such, the remarks made above in regards to claim 28 apply equally to these claims. These claims are also allowable for their own recited features, which the references of record have not been shown to disclose, teach, or suggest. In addition, while some of these claims are rejected in view of other references, these other references similarly fail to disclose or suggest the language added to the base claim.

Claim 40 recites a computing device comprising (added language underlined):

- means for determining respective attention value and image fidelity of attention objects derived from an image, specified minimal amounts of size and time conditions under which to present the attention objects to a user, and user-browsing characteristics;

- means for adapting the image for presentation on a small display device to present objectively interesting portion(s) of the image based in part on display constraints of the device, and attributes of the attention objects;

- means for calculating a navigation path through the image that has been adapted for presentation on the small display device, the navigation path identifying a browsing path from one objectively important portion of the image to at least one other objectively important portion of the image, respective image portions being represented by individual ones of the attention objects, the browsing path being generated as a function of desired human browsing behavior associated with time and space; and

- means for causing display of the image by panning the image from the one objectively important portion of the image to the at least one other objectively important portion of the image.

In making out a rejection of this claim, the Office alleges that the combination of Horvitz and Itti renders this claim obvious. Applicant respectfully disagrees. Nevertheless, for the sole purpose of expediting allowance and without conceding the propriety of the Office's rejections, Applicant has amended this claim as discussed during the interview. Applicant respectfully submits that the cited references at least fail to disclose "means for causing display of the image by panning the image from the one objectively important portion of the image to the at least one other objectively important portion of the image." (emphasis added). During the afore-mentioned interview, the Office agreed. Applicant thanks the Office for this indication.

For at least this reason, this claim stands allowable.

Claim 41 has been added and recites a method comprising (emphasis added):

- modeling an image with respect to multiple visual attentions to generate a respective set of attention objects (AOs) for each attention of the visual attentions;

- analyzing the attention objects and corresponding attributes to optimize a rate of information gain as a function of information unit cost in terms of time associated with multiple image browsing modes; and

- responsive to analyzing the attention objects, generating a browsing path to select ones of the attention objects, the browsing path being a trade off of time for space or space for time;

- wherein generating the browsing path further comprises creating the browsing path in view of a skimming image-browsing mode as follows:

  o splitting one or more large AOs of the AOs into smaller AOs;

  o combining AOs in close proximity to one another into one or more attention groups;

  o arranging the attention groups in decreasing order based on respective attention values;

  o *for each attention group of the attention groups:*

    - *selecting the attention group as a starting point;*

    - *calculating a total browsing time and information fidelity for each path of all possible paths from the starting point; and*

    - *if the total browsing time is greater than a browsing time threshold, discarding the path;*

  o *selecting a non-discarded path having a largest information fidelity as the browsing path, the browsing path connecting each of the attention groups.*

As described above, new claim 41 corresponds to original and now-canceled dependent claim 12. As such, new claim 41 comprises original claim 12.

In making out a rejection of original claim 12, the Office states that the combination of Horvitz, Itti, Osberger, and Pirolli render this claim obvious. Specifically, the Office makes the following finding of fact, among others:

> Pirolli discloses:
>
> - a method wherein generating the browsing path further comprises, for each attention group of the group of the attention groups:
>
> - selecting the attention group as a starting point;
>
> - calculating a total browsing time and information fidelity for each path of all possible paths from the starting point; and
>
> - if the total browsing time is greater than a browsing time threshold , discarding the path;
>
> - selecting a non-discarded path having a largest information fidelity as the browsing path, the browsing path connecting each of the attention groups (page 33, right column, lines 26-31, page 36, left column, lines 6-16 and right column, Task Conditions section, i.e. Hard deadline).

Applicant respectfully traverses the Office's rejection. Specifically, Applicant respectfully submits that the Office's finding of fact regarding Pirolli is incorrect. As such, Applicant respectfully submits that the Office fails, in the current Action, to state a *prima facie* case of obviousness. During the afore-mentioned interview, the Office agreed.

Specifically, Applicant submits that the Office's finding of fact regarding Pirolli is incorrect for at least the following reasons: (1) Pirolli fails to teach or suggest "calculating a total browsing time and information fidelity for each path of all possible paths from the starting point", and (2) Pirolli fails to teach or suggest

"selecting a non-discarded path having a largest information fidelity as the browsing path, the browsing path connecting each of the attention groups".

Generally, Pirolli describes tools that allow researchers to study human-computer interactions by modifying and testing different browser user interface designs. The abstract of Pirolli states the following:

ABSTRACT
Designers and researchers of human-computer interaction need tools that permit the rapid exploration and management of hypotheses about complex interactions of designs, task conditions, and user strategies. Dynamic programming is introduced as a such a tool for the analysis of information foraging technologies. The technique is illustrated in the context of the Scatter/Gather text clustering browser. Hypothetical improvements in browser speed and text clustering are examined in the context of variations in task deadlines and the quality of the document repository. A complex and non-intuitive set of tradeoffs emerge from even this simple space of factors, illustrating the general utility of the approach.

Pirolli, abstract.

With the general nature of Pirolli in mind, Applicant now reproduces the first cited portion of the text. Here, Pirolli explains a technique (entitled "dynamic programming") for testing the fitness of different browser user interfaces by analyzing the human-computer interaction on the different interfaces. Specifically, this passage states the following:

> Conceptually, it does this by searching through the different possible paths of human-computer interaction, evaluating the costs and values of different paths, and finding the best paths. In this manner, one can find the best-case performance of a user interface. This is the *fitness* of the interface.

Pirolli, lines 26-31.

Again, this portion of Pirolli, as well as Pirolli as a whole, relates to determining a *fitness of a user interface for a browser*. As such, Applicant

respectfully submits that Pirolli entirely fails to relate to "attention groups" within an image at all, as recited in Applicant's claims. Nevertheless, setting this aside, Pirolli's discussion of determining a fitness for each of different user interfaces fails to teach or suggest the concept of "calculating…information fidelity". As such, Pirolli fails to relate to "*calculating* a total browsing time and *information fidelity* for each path of all possible paths from the starting point", as recited in Applicant's claim. (emphasis added).

Additionally, Applicant respectfully submits that because Pirolli has not been shown to relate to "information fidelity", Pirolli has certainly not been shown to teach or suggest "selecting a…path having a *largest* information fidelity". (emphasis added). As such, the user-interface analysis that Pirolli describes similarly fails to teach or suggest "selecting a non-discarded path *having a largest information fidelity* as the browsing path, the browsing path connecting each of the attention groups", also as recited in Applicant's claim. (emphasis added).

During the afore-mentioned interview, the Office agreed. In fact, during the interview the Office stated that Pirolli simply lacks the concept of "information fidelity". Applicant sincerely thanks the Office for these indications.

For at least these reasons, Applicant respectfully submits that new claim 41 stands allowable.

CONCLUSION

For at least the foregoing reasons, claims 1-4, 6-14, 16-18, 20-30, and 32-41 are in condition for allowance. Applicant respectfully requests reconsideration and withdrawal of the rejections and an early notice of allowance. **If any issue remains unresolved that would prevent allowance of this case, Applicant respectfully requests the Office to contact the undersigned attorney to resolve the issue.**

Respectfully Submitted,

Lee & Hayes, PLLC
421 W. Riverside Avenue, Suite 500
Spokane, WA 99201

Dated: 2008/01/16

/ Robert G. Hartman/
Robert G. Hartman
Reg. No. 58,970
(509) 324-9256 ext. 265